



# State of Vermont

Department of Fish and Wildlife  
Department of Forests, Parks and Recreation  
Department of Environmental Conservation  
State Geologist  
Natural Resources Conservation Council  
RELAY SERVICE FOR THE HEARING IMPAIRED  
1-800-253-0191 TDD>Voice  
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES  
Department of Environmental Conservation  
Hazardous Materials Management Division  
103 South Main Street / West Building  
Waterbury, Vermont 05671-0404  
802-241-3888  
FAX 802-241-3296

March 25, 1994

Jerry Miglorie  
Jerry's Nissan  
RR#1, Box 3789  
Rutland, VT 05701

RE: Jerry's Nissan, Rutland (Site #911163)

Dear Mr. Miglorie:

The Sites Management Section (SMS) has reviewed Lincoln Applied Geology's (LAG's) "Summary of Environmental Work Completed at Jerry's Nissan, Rutland, VT" dated March 09, 1994.

This summary report documents the ongoing investigations at this site, and shows that the level of contaminants in the groundwater beneath the site are slightly impacted with BTEX and MTBE.

The SMS concurs with LAG's recommendation to monitor the groundwater (monitoring wells, onsite water supply and downgradient water supply) on a semi-annual schedule for BTEX and MTBE, and to monitor the petroleum contaminated soils this Spring. The SMS approves of the cost estimate as presented in this report. Please direct LAG to begin this monitoring in the spring.

If you have any questions please feel free to contact me at 241-3888.

Sincerely,

Linda Elliott, Project Manager  
Sites Management Section

cc:Richard Vandenberg, LAG

LE:wp51/sites/911163semi.let



March 9, 1994  
MAR 10 11 06 AM '94

HAZARDOUS MATERIALS  
LABORATORY DIVISION

Mr. Charles B. Schwer  
Petroleum Sites Coordinator  
Vermont Department of  
Environmental Conservation  
103 South Main St.  
Waterbury, VT 05676

RE: Summary of Environmental Work Completed at Jerry's Nissan, Rutland,  
VT (VDEC Site # 91-1163)

Dear Mr. Schwer:

Lincoln Applied Geology, Inc. (LAG) has recently completed tasks outlined in our December 15, 1993 workplan and cost estimate for Jerry's Nissan which you approved in your December 28, 1993 letter. The general location of Jerry's Nissan is depicted on **Figure 1**, and the tasks that were completed include:

- 1) performing a file review and assessment to determine if potential sensitive receptor impacts exist,
- 2) installation of three ground water monitor wells,
- 3) development and sampling of three wells for BTEX and MTBE, and
- 4) develop a treatment and/or monitoring plan for the stockpiled soils.

Results of this work indicate that low levels of gasoline contamination have migrated a short distance from the former tank location. The only potential sensitive receptors are the on-site drinking water well and downgradient gravel well, both of which will be sampled this month. We will also sample the intermittent stream and cumulative results will be reported upon their receipt. LAG recommends semi-annual monitoring of the wells and the soil pile commencing this spring. This data will be utilized to develop data trends and prepare site closure documentation if the levels remain the same because no significant threat to human health or to the environment appears to be imminent.

Prior to any field work, LAG conducted a file review at state offices to locate any potential sensitive receptors and other contaminant sources in the area. LAG also prepared a Health and Safety Plan (HASP) which is included in **Appendix A**. No threatened off-site potential receptors were identified. One gravel well is located approximately 500 feet to the south of the site, although, based on current water quality, it does not appear to be threatened. We do however believe that sampling this well is necessary to assure that elevated concentrations are not noted in downgradient wells (to the south). **Figure 2** shows the pertinent features and topography around the site.

Three monitor wells were installed on January 24, 1994. The monitor wells were placed in locations to intercept possible contamination migrating in the assumed downgradient direction (**Figure 3**). Borings were made utilizing hollow-stem auger techniques with split-spoon collection of soil samples. Detailed soil sample descriptions can be found on the attached geologic logs in **Appendix B**. Sediment samples were screened with a photoionization detector (PID) for volatile organic compounds (VOCs). Two inch PVC ground water monitor wells were constructed and installed in each boring after sufficient saturated sediments were encountered. After installation, each well was appropriately developed until the discharge was clear and free of sediment.

The collected split-spoon soil samples revealed that the subsurface beneath the site is composed of sands, gravels, and cobbles. The sand deposit is considerably finer at approximately 12 feet. The water table was encountered at each location from 4.9 - 6.0 feet below the surface. Although PID assays of vadose zone soils from MW-1 reached saturated lamp conditions, the sands below the water table assayed background readings. All soil samples from the MW-2 and 3 downgradient borings also assayed background by PID.

Fluid level data was used along with survey information for each well to generate **Figure 4**, a ground water contour map. **Table 1** contains tabulated ground water elevation data. Ground water flows to the south along a relatively flat gradient towards the intermittent drainageway. The contour map indicates that wells MW-1, MW-2, and MW-3 are appropriately located to intercept potential contaminant migration from the former tank excavation.

The three monitor wells were appropriately sampled for BTEX and MTBE constituents. The wells were purged using industry accepted methods and samples were collected and placed in 40 milliliter bottles. The collected samples were acidified, chilled, and delivered to MicroAssays of Vermont in Montpelier, Vermont along with the proper chain-of-custody forms and a trip blank.



Lincoln Applied Geology, Inc.  
Environmental Consultants

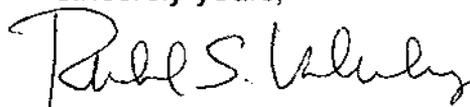
RD # 1 Box 710 • Bristol, Vermont 05443 • (802) 453-4384 • FAX (802) 453-5399

The analytical results indicate that the ground water beneath the site has been slightly impacted with low levels of BTEX and MTBE. BTEX concentrations ranged from 13 parts per billion (ppb) to 36 ppb. MTBE was detected in MW-2 and MW-3 at 4 ppb but was not detected above quantitation limits in MW-1. **Table 2** contains tabulated PID data and **Table 3** contains summarized ground water chemistry results. Copies of formal laboratory results can be found in **Appendix C**. **Figure 5** shows the spatial distribution of BTEX and MTBE on the site.

Concentrations of BTEX and MTBE are low in the ground water despite PID assay of soil samples indicating that the soil surrounding MW-1 contains elevated levels of VOCs. The stockpiled soil pile will be assayed with a PID in the spring when it has thoroughly thawed. PID monitoring of the soil pile will help establish if the pile needs to be further treated. To monitor the ground waters, LAG recommends that semi-annual monitoring be conducted for one year to develop water quality trends. This schedule should commence with the spring high water level season. The sampling of the on-site drinking water well, downgradient gravel well, and monitoring of the soil pile should be included in the semi-annual monitoring schedule. If levels remain at or below guidelines, LAG will recommend site closure.

A cost estimate for the continued work is attached as **Appendix D**. If you have any questions, comments, or concerns with regard to this matter, please do not hesitate to call me, or John Amadon, LAG Project Manager at 453-4384.

Sincerely yours,



Richard S. Vandenberg  
Hydrogeologist

RSV/cds  
Enclosures  
cc: Jerry Migliore



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Environmental Consultants

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Project: Jerry's Nissan  
Location: Rutland, Vermont

Table I  
VDEC Site # 91-1163  
Sheet 1 of 1

**Ground Water Elevation/Product Level (feet)**

Data Point	TOC	2-2-94						
MW-1	101.89	98.48						
MW-2	100.00	96.48						
MW-3	101.31	97.95						

Notes:

- 1 - Elevation datum assumed
- 2 - Reference elevation is elevation of top of PVC well casing
- Light Grey Cell = DRY
- Dark Grey Cell = Inaccessible

Project: Jerry's Nissan  
Location: Rutland, Vermont

Table 2  
VDEC Site # 91-1163  
Sheet 1 of 1

**Photoionization Results (PID - ppm)**

Data Point	2-2-94						
MW-1	SL						
MW-2	6.0						
MW-3	9.0						

Notes:  
BG - Background  
SL - Saturated Lamp

Project: Jerry's Nissan  
Location: Rutland, Vermont

Table 3  
VDEC Site # 91-1163  
Sheet 1 of 1

**Ground Water Quality Results (ppb)**

Data Point	2-2-94						
MW-1	15	<2					
MW-2	36	4					
MW-3	34	4					

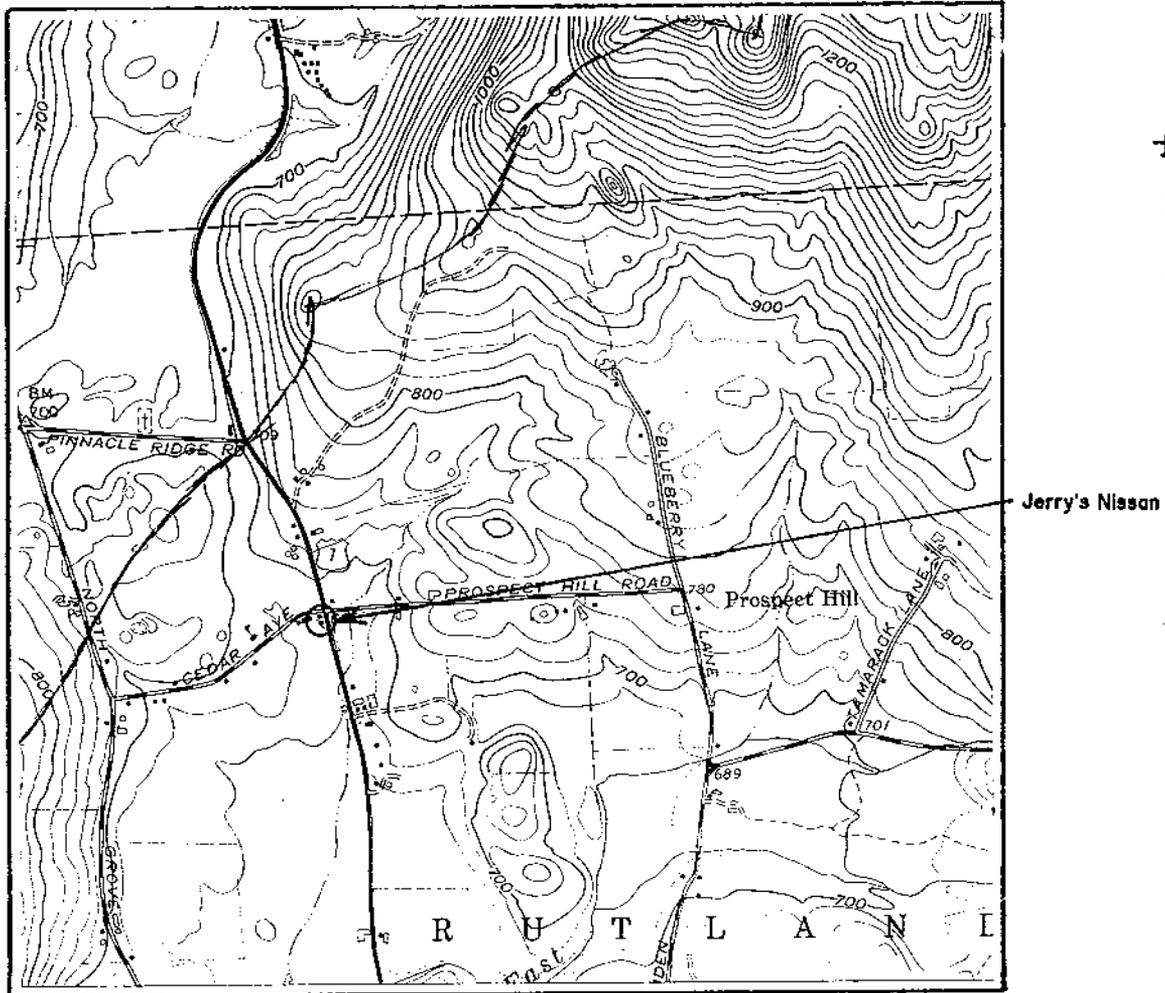
**NOTES:**

MTBE in upper right corner of cell

BTEX in lower left corner of cell

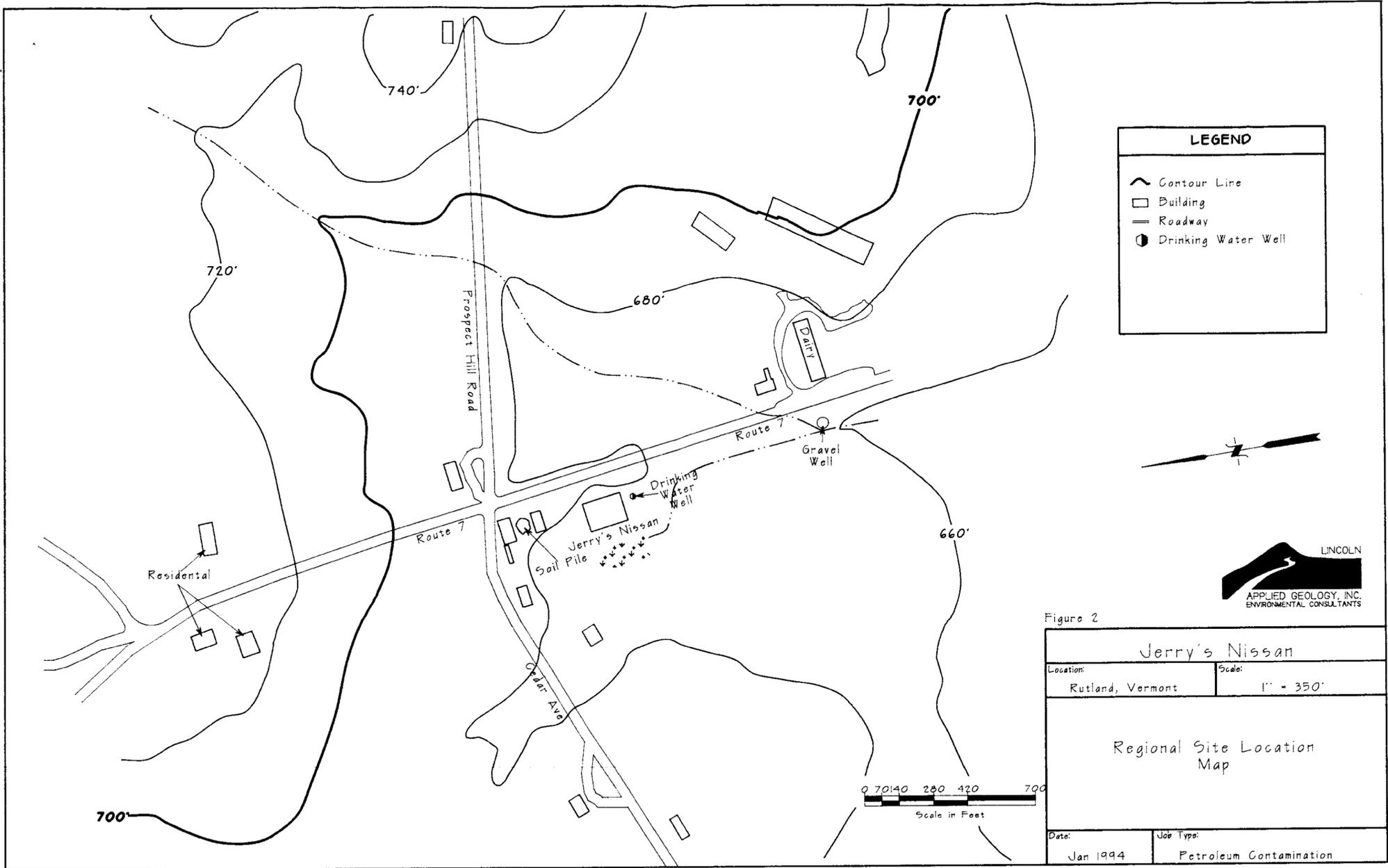
< - Contaminant not detected at specified detection limit

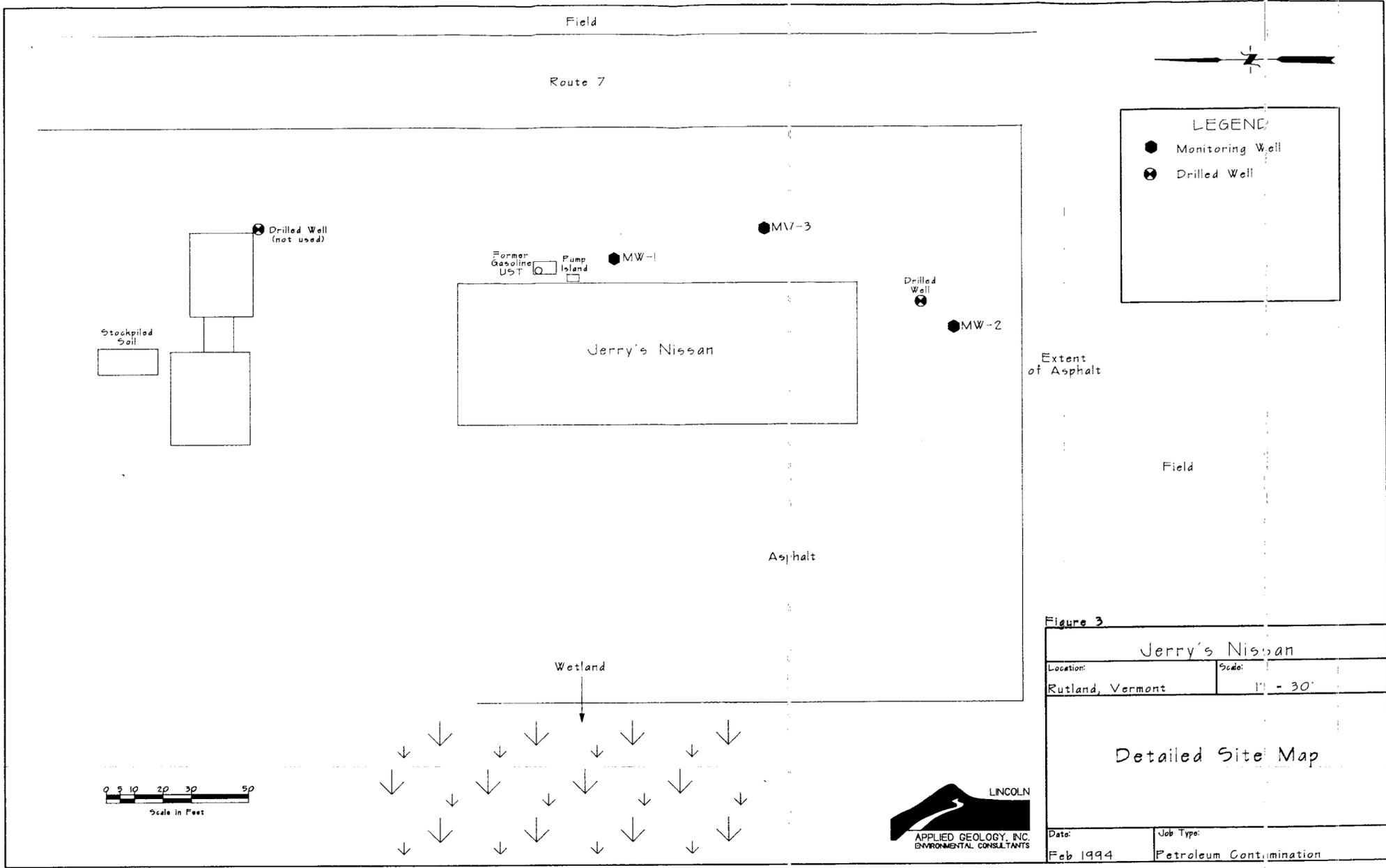
### Jerry's Nissan GENERAL LOCATION MAP

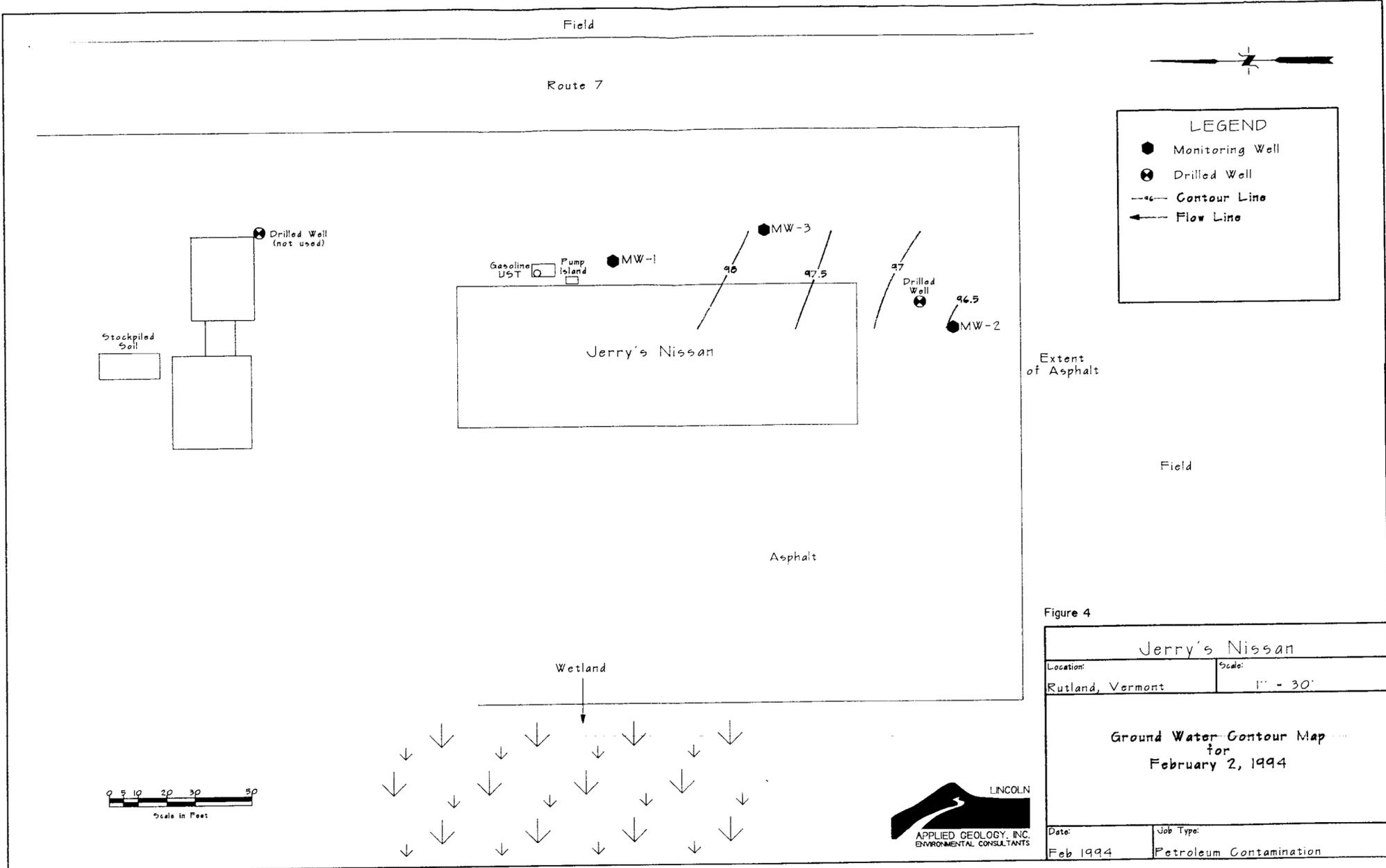


Source: U.S.G.S. 7.5 min.  
Topo Series  
Chittenden, Vt. Quad

Scale: 1" = 2000'







**LEGEND**

- Monitoring Well
- ⊗ Drilled Well
- - - Contour Line
- ← Flow Line

Figure 4

Jerry's Nissan	
Location:	Scale:
Rutland, Vermont	1" = 30'
Ground Water Contour Map for February 2, 1994	
Date:	Job Type:
Feb 1994	Petroleum Contamination

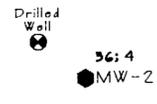
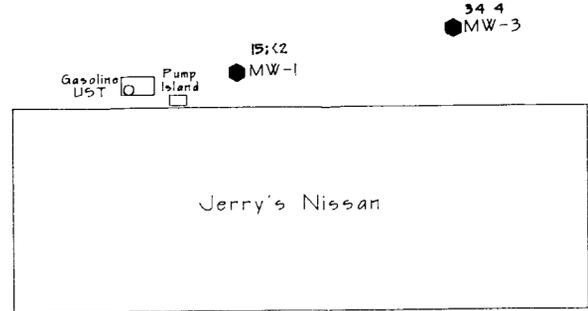
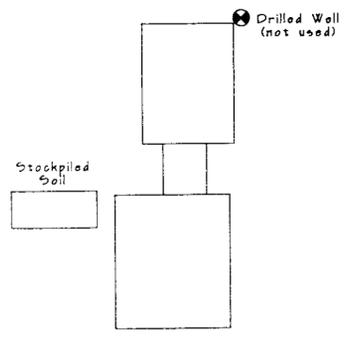
Field

Route 7



**LEGEND**

- Monitoring Well
- ⊗ Drilled Well
- 36:4 BTEX/MIBE Contaminant Concentrations (ppb)



Extent of Asphalt

Field

Asphalt

Wetland

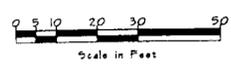
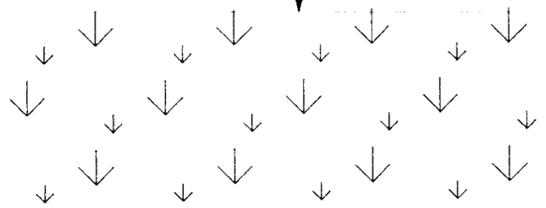


Figure 5

Jerry's Nissan	
Location:	Scale:
Rutland, Vermont	1" = 30'
Water Quality Summary Map for February 2, 1994	
Date:	Job Type:
Feb 1994	Petroleum Contamination

# **APPENDIX A**

## **Health and Safety Plan**

## SITE HEALTH AND SAFETY PLAN

Site Name: Jerry's Nissan  
Date: January 14, 1994  
Site Address: Route 7, Rutland, Vermont  
Project Manager: Richard S. Vandenberg  
Client Contact: Jerry Miglorie

Site and Project Description: **Jerry's Nissan** has been identified as the source of subsurface petroleum contamination. An unknown quantity of gasoline has been released into the subsurface. Monitor well installations will be necessary to define the extent and magnitude of the problem. Monitor wells will be installed, monitored, and sampled on a routine basis.

Site Health and Safety Information: Gasoline does contain known and suspected carcinogens including benzene, toluene, xylenes and naphthalene. Detailed MSDS and chemical descriptions are available at LAG.

### Site Personnel Protection Requirements:

Activity	Level of Protection	Special Equipment Requirements
Remedial system monitoring, monitor well installation, soil vapor study, sample collection and monitoring of remediation systems.	D	Work clothes, steel toe shank boots, surgical gloves, hard hat

Monitoring: During monitoring well installation the area will be screened every 15 minutes with HNU PID. During normal site monitoring the area will be screened by PID prior to entering the area. Also, PID measurement will be ample as soon as the remedial shed door is opened.

Contingency:

PID 10 - 20 ppm	Monitor continuously
PID 20 - 100 ppm	Upgrade to Level C
PID >100 ppm	Shut down activities and evacuate

Decontamination: Personnel protective equipment shall be rinsed and washed with a Liquinox Soap solution. Hands and face shall be washed in the same manner.

IMPORTANT PHONE NUMBERS

State Police: 773-9101  
Fire Department: 773-2565  
Ambulance: 911  
Local Hospital: Rutland Regional 775-7111  
Safety Director: Steve Revell 453-4384 (office) 453-3122 (home)  
Safety Officer(s): Richard Vandenberg 453-4384 (office) 453-4764 (home)

Project Manager: Richard S. Vandenberg  
Client Contact: Jerry Miglorie

Directions to Hospital: Route 7 south to Route 4 east. Right on Stratton Road.  
Hospital is at end of road.

Site Personnel:

James W. Robison  
Jim Ad  
Bob Shires

William Noland  
Kevin Kennedy  
Alan Tomlinson

Other Comments: Intrusive work within the excavation should be avoided during these processes. However, if intrusive operations are necessitated, determination of additional safety and/or personal protective equipment will be made on-site and documented.

Project Manager Richard S. Vadeley

Safety Director John Powell

This site \_\_\_ does  does not require a detailed site safety plan.

# APPENDIX B

## Geologic Logs

## GEOLOGIC LOG

WELL: MW-1  
LOCATION: Jerry's Nissan, Rutland, Vermont  
DRILLER: D. & K. Drilling  
HYDROGEOLOGIST: Richard Vandenberg, Lincoln Applied Geology, Inc.  
DATE: January 24, 1994

### Soils Description

BG = Background

<u>Depth</u>	<u>Description</u>	<u>HNU (ppm)</u>
0 - 2'	Asphalt; sand, medium to coarse, tan to brown; some cobble; trace boulder.	10
2' - 3'	Same as above except black.	SL
3' - 6'	Sand, fine to coarse; some gravel medium to coarse; some silt; trace cobble. (ground water at 5 feet).	SL @ 4'-6'
6' - 12'	Sand, medium to coarse, brown; (till at bottom 11'-12').	BG @ 10-12'

### Well Construction

Bottom of Boring: 12'  
Well Screen: 3' - 10'  
Solid Riser: 0 - 3'  
Sand Pack: 2.5' - 10'  
Bentonite Seal: 2.0' - 2.5'  
Backfill: 0 - 2'  
Well Box: Flush grade bolt down.

## GEOLOGIC LOG

WELL: MW-2  
LOCATION: Jerry's Nissan, Rutland, Vermont  
DRILLER: D. & K. Drilling  
HYDROGEOLOGIST: Richard Vandenberg, Lincoln Applied Geology, Inc.  
DATE: January 24, 1994

### Soils Description

BG = Background

<u>Depth</u>	<u>Description</u>	<u>HNU (ppm)</u>
0 - 2'	Asphalt; sand, fine to medium, orange; some gravel fine to coarse; trace cobble.	BG
2' - 6'	Sand, fine to medium, tan to brown; trace gravel; sample moist.	BG
6' - 12'	Sand, fine to coarse; some gravel, fine; trace silt at 12 feet. (ground water encountered at 6 feet)	BG @ 10-12'

### Well Construction

Bottom of Boring: 12'  
Well Screen: 3' - 12'  
Solid Riser: 0 - 3'  
Sand Pack: 2' - 12'  
Bentonite Seal: 2.0' - 2.5'  
Backfill: 0 - 2.0'  
Well Box: Flush grade bolt down.

## GEOLOGIC LOG

WELL: MW-3  
LOCATION: Jerry's Nissan, Rutland, Vermont  
DRILLER: D. & K. Drilling  
HYDROGEOLOGIST: Richard Vandenberg, Lincoln Applied Geology, Inc.  
DATE: January 24, 1994

### Soils Description

BG = Background

<u>Depth</u>	<u>Description</u>	<u>HNU (ppm)</u>
0 - 2'	Asphalt; sand, fine to coarse, orange to tan; some gravel fine to coarse; trace silt; trace cobble.	BG
2' - 6'	Sand, very fine to coarse, brown to orange stained; some gravel; trace cobble; trace silt. (ground water encountered at 4.9 feet)	BG @ 4-6'
6' - 12'	Sand, medium to coarse, tan; some gravel, fine.	BG @ 10-12'

### Well Construction

Bottom of Boring: 12'  
Well Screen: 3' - 10'  
Solid Riser: 0 - 3'  
Sand Pack: 2.5' - 10'  
Bentonite Seal: 2.0' - 2.5'  
Backfill: 0 - 2'  
Well Box: Flush grade bolt down.

## APPENDIX C

Ground Water Quality Results  
February 1994



LINCOLN APPLIED GEOLOGY

## LABORATORY ANALYSIS

CLIENT NAME:	Lincoln Applied Geology	REF #:	8225
ADDRESS:	RD#1 Box 710 Bristol, VT 05443	PROJECT NO.:	not given
SAMPLE LOCATION:	Jerry's Nissan (Rutland, VT)	DATE OF SAMPLE:	2/2/94
SAMPLER:	Jim Holman	DATE OF RECEIPT:	2/2/94
		DATE OF ANALYSIS:	2/9,2/10/94
ATTENTION:	John Amadon/Rick Vandenberg	DATE OF REPORT:	2/14/94

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCl.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Matrix spikes, matrix spike duplicates, and continuing calibration standards were monitored at intervals indicated in the specified method. The resulting analytical precision and accuracy were determined to be within method QA/QC acceptance limits.
- The inferred efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analytes to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:

Brendan McMahon, Ph.D.  
Director, Chemical Services



## LABORATORY REPORT

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Jerry's Nissan (Rutland, VT)	REF.#:	8,225
REPORT DATE:	February 14, 1994	STATION:	MW-1
DATE SAMPLED:	February 2, 1994	TIME SAMPLED:	12:45
DATE RECEIVED:	February 2, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	February 10, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Concentration (µg/L)
Benzene	2	BPQL
Toluene	2	3
Ethylbenzene	2	2
Xylenes	6	8
MTBE	2	BPQL

Surrogate % Recovery: 100%

BPQL = Below Practical Quantitation Limit (PQL).



## LABORATORY REPORT

### GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Jerry's Nissan (Rutland, VT)	REF.#:	8,225
REPORT DATE:	February 14, 1994	STATION:	MW-2
DATE SAMPLED:	February 2, 1994	TIME SAMPLED:	12:05
DATE RECEIVED:	February 2, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	February 10, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ( $\mu\text{g/L}$ )	Concentration ( $\mu\text{g/L}$ )
Benzene	1	7
Toluene	1	15
Ethylbenzene	1	2
Xylenes	3	12
MTBE	1	4

Surrogate % Recovery: 100%

BPQL = Below Practical Quantitation Limit (PQL).



## LABORATORY REPORT

### GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Jerry's Nissan (Rutland, VT)	REF.#:	8,225
REPORT DATE:	February 14, 1994	STATION:	MW-3
DATE SAMPLED:	February 2, 1994	TIME SAMPLED:	12:28
DATE RECEIVED:	February 2, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	February 10, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Concentration (µg/L)
Benzene	1	7
Toluene	1	14
Ethylbenzene	1	2
Xylenes	3	11
MTBE	1	4

Surrogate % Recovery: 99%

BPQL = Below Practical Quantitation Limit (PQL).



## LABORATORY REPORT

### GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Jerry's Nissan (Rutland, VT)	REF.#:	8,225
REPORT DATE:	February 14, 1994	STATION:	Trip Blank
DATE SAMPLED:	February 2, 1994	TIME SAMPLED:	05:45
DATE RECEIVED:	February 2, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	February 9, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ( $\mu\text{g/L}$ )	Concentration ( $\mu\text{g/L}$ )
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
Xylenes	3	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 99%

BPQL = Below Practical Quantitation Limit (PQL).



## APPENDIX D

### Cost Estimate

**Jerry's Nissan  
Rutland, Vermont  
Cost Estimate for Semi-Annual Monitoring**

**A. Monitor Well Sampling, Stadia Survey and Sampling of the  
Drinking Water Well**

Technician -	6	hr(s) @	\$30.00 per hour	\$180.00
PID and Interface Probe -	1	day(s) @	\$100.00 per day	\$100.00
Pump and Generator -	1	day(s) @	\$110.00 per day	\$110.00
Disposable Bailers -	3	@	\$6.70 each	\$20.10
Mileage -	120	mile(s) @	\$0.30 per mile	\$36.00
Samples - EPA Method 8020 including MTBE	9	@	\$60.00	\$540.00
<b>Subtotal</b>				<b>\$986.10</b>

**B. Semi Annual Reports**

Senior Hydrogeologist -	2	hr(s) @	\$75.00 per hour	\$150.00
Project Manager -	3	hr(s) @	\$50.00 per hour	\$150.00
Hydrogeologist -	6	hr(s) @	\$45.00 per hour	\$270.00
Computer Technician -	2	hr(s) @	\$30.00 per hour	\$45.00
Administrative Assistant -	5	hr(s) @	\$30.00 per hour	\$135.00
<b>Subtotal</b>				<b>\$750.00</b>

**Total A and B**

**\$1,736.10**